MILLION Solar ROOFS

SUCCESS STORIES

The goal of the Million Solar Roofs Initiative is to install one million solar energy systems on U.S. buildings by 2010. The Initiative focuses on two types of solar energy technology — photovoltaics that produce electricity from sunlight, and solar thermal systems that produce heat for domestic hot water, space heating or heating swimming pools. The U.S. Department of Energy leads this effort in partnership with the building industry, other federal agencies, utilities, the solar energy industry, financial institutions, state and local governments, and non-governmental organizations. These partnerships concentrate on removing market barriers and developing and strengthening demand for solar energy products and applications. As progress is made toward the goal of one million solar roofs, greenhouse gases and other harmful emissions will be reduced, high tech jobs will be created, and the U.S. solar energy industry will retain its competitive edge.

Project: Residential Installation

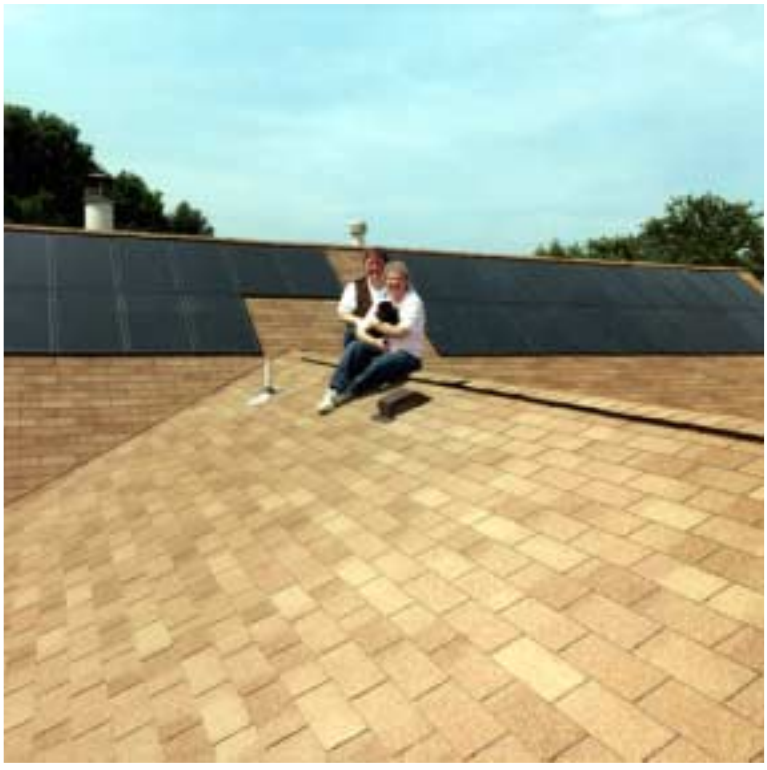
Type: On-Grid PV System

Location: Glenn Dale, MD

Background: In September 1997, the Maryland Energy Administration (MEA) developed the Residential Rooftop Program which coincided with President Clinton's announcement of the Million Solar Roofs Initiative. Maryland committed to install 20,000 rooftop systems by 2010, making it the first state to make such a commitment under the Initiative.

Lynne Gillette, an employee of the Department of Energy's Office of Power Technologies, and Lynn Feldman, a child and adolescent psychiatrist, took advantage of the opportunity provided by the State of Maryland and undertook a major home improvement project. In addition to a PV system, the project included energy efficient appliances, windows, lighting and other equipment, as well as a new light-colored roof.

System Description: The Gillette/Feldman home features an on-grid, 1.4 kW amorphous silicon thin-film roof-mounted photovoltaic system as part of the home improvement project. The system uses BP Solarex Millennia panels and an Omnion inverter. The home is net-metered with no battery back-up. An extra utility-style meter was installed next to the inverter, to measure the total energy created by the solar electric system since it has been installed. Net-metering legislation passed in Maryland in 1997 allows homeowners to interconnect a PV system with a utility system to spin the electric meter in reverse during times when solar output is greater than the electricity being consumed.



Financing: Maryland's Residential Rooftop Program provides grant money for new, grid-tied photovoltaic systems installed on residential buildings. The system must be a minimum of 1.2 kW to qualify for the grant. Availability of grants is on a first-come, first-served basis until funding is depleted. The current grant for each system is approximately $3,600, but will be reduced in following years.

Climate: The site is located in Central Maryland, several miles northeast of Washington, DC. The weather is typical of the Mid-Atlantic States with an average temperature of 25 degrees Fahrenheit in the winter months, and high humidity and 90 degrees Fahrenheit in the summer months. The system will receive an average of 4.7 hours of sunlight per day.

Total Installed Cost: The total cost of the PV system was $10,100. While Ms. Gillette's cost was $6,500, the MEA contributed the remaining $3,600 for the system.

Optimum Maintenance Costs: There are no maintenance costs involved with the rooftop system, unless the system needs additional parts for repairs.

Direct savings: On average, the household's electric bill is reduced by $50- $60 per month.

Environmental Benefits: By using solar versus fossil fuel generated power, the system avoids these emissions every year: 12 lbs. of nitrous-oxides, 27 lbs. of sulfur dioxide, and 4,633 lbs. of carbon dioxide. The carbon dioxide emission reduction of 1.4 kW of photovoltaic power is equal to the emissions from driving the average passenger car 5,791 miles, or the amount of carbon dioxide absorbed by 1 acre of trees in one year. This reduction and those from others involved in Maryland's program are critical for the long-term health of the environment, including the health of the Chesapeake Bay and its riparian habitat. For additional information on environmental impacts check out the EPA's website at **http://www.epa.gov/globalwarming/.**

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